

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* NOBUYUKI TAKAMORI,  
HIDEHARU TAJIMA and  
AKIRA TAKAHASHI

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Appeal 2007-3146  
Application 10/002,952  
Technology Center 1700

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Decided: September 25, 2007

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Before BRADLEY R. GARRIS, PETER F. KRATZ, and  
JEFFREY T. SMITH, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 1, 5, 6, and 10-14. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

## INTRODUCTION

Appellants claim an optical data recording medium comprising, in relevant part, a protective film, which is mainly comprised of a resin and is formed on a thin film layer, wherein an expansion coefficient under humidity of the protective film is greater than that of the transparent substrate (claim 1).

Claims 1, 11, 12, 13, and 14 are illustrative:

1. An optical data recording medium comprising a transparent substrate, a thin film layer formed on the transparent substrate and a protective film which is mainly comprised of a resin and formed on the thin film layer for protecting the thin film layer, wherein the thin film layer is a single layered or multilayered film including at least any one of a dielectric film, a recording film and a reflective film, and an expansion coefficient under humidity [ratio of expansion (1/%) where a difference of relative humidity (vapor content/saturated vapor amount at 25°C) is increased by 1%] of the protective film is greater than that of the transparent substrate and smaller than  $5.5 \times 10^{-5}$  (1/%) and the thickness of the protective film is 5  $\mu\text{m}$  to 20  $\mu\text{m}$ .

11. An optical data recording medium according to claim 1, wherein the expansion coefficient under humidity of the protective film is 7 or less times as great as that of the transparent substrate, the expansion coefficient under humidity being greater than  $7 \times 10^{-6}$  (1/%) and smaller than  $5 \times 10^{-5}$  (1/%), and a Young's modulus of the protective film is greater than  $4.0 \times 10^9$  (Pa) and smaller than  $1.0 \times 10^{10}$  (Pa).

12. An optical data recording medium comprising a transparent substrate, a thin film layer formed on the transparent substrate and a protective film which is mainly comprised of a resin and formed on the thin film layer for protecting the thin film layer,

wherein the thin film layer is a single layered or multilayered film including at least any one of a dielectric film, a recording film and a reflective film and

wherein an expansion coefficient under humidity, Young's modulus and thickness of the protective film are suitably adjusted so that the bending moments of the transparent substrate and the protective film generated by change in humidity are balanced with a neutral plane being a plane perpendicular to the film thickness direction and the position of the neutral plane is arranged within the thin film layer.

13. An optical data recording medium according to claim 1, wherein the expansion coefficient under humidity of the protective film is greater than that of the transparent substrate and smaller than  $1.6 \times 10^{-5}$  (1/%).

14. An optical data recording medium consisting essentially of a transparent substrate, a thin film layer formed on the transparent substrate and a protective film which is mainly comprised of a resin and formed on the thin film layer for protecting the thin film layer, wherein the thin film layer is a single layered or multilayered film including at least any one of a dielectric film, a recording film and a reflective film, and an expansion coefficient under humidity [ratio of expansion (1/%) where a difference of relative humidity (vapor content/saturated vapor amount at 25°C) is increased by 1%] of the protective film is greater than that of the transparent substrate and smaller than  $5.5 \times 10^{-5}$  (1/%) and the thickness of the protective film is 5  $\mu\text{m}$  to 20  $\mu\text{m}$ .

The Examiner relies on the following prior art reference as evidence of unpatentability:

Tajima (as translated)                   JP 2000-311381                   Nov. 7, 2000

The rejection as presented by the Examiner is as follows:

1. Claims 1, 5, 6, and 10-14 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Tajima.

The Examiner contends that Tajima inherently discloses the claimed expansion coefficient under humidity and other properties of the materials (Answer 4, 5).

Appellants separately argue independent claims 1, 10, 12, and 14, and dependent claims 11 and 13. Accordingly, non-argued dependent claims 5 and 6, which directly or ultimately depend on claim 1, stand or fall with claim 1.

## OPINION

### CLAIMS 1, 10, and 11-13

Appellants argue that Tajima does not disclose a substrate film or a protective film of an optical information recording medium which has an expansion coefficient under humidity of less than  $5.5 \times 10^{-5}$  (1/%) (Br. 12). Appellants further argue that the Examiner has not established via the use of extrinsic evidence that Tajima inherently discloses the claimed expansion coefficient under humidity (Br. 15). Appellants argue that the Examiner has not established that Tajima discloses all the limitation of claim 12 (Br. 16). Appellants argue that the features of claims 11 and 13, including the expansion coefficient under humidity, are not disclosed by Tajima (Br. 18-19). Appellants argue that the comparative data on page 16 of the "Amendment and Response" filed June 10, 2005 and attached to the Evidence Appendix of the Brief, establish that ultraviolet light curing resins do not all inherently have the properties of the presently claimed optical data recording medium such that any *prima facie* case established by the Examiner is rebutted (Br. 17).

We have considered all of Appellants' arguments and evidence, and are unpersuaded for the reasons below.

Generally, where the claimed products are identical or substantially identical, the USPTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

Tajima discloses an optical information recording medium that can restrain warpage caused by changes in the environment or changes occurring over time (Tajima ¶ [0001]). Tajima further explains that “changes in the environment” includes “change[s] in temperature or humidity” (Tajima ¶ [0004]). Tajima states, “The purpose of the present invention is to solve the aforementioned problems by providing an optical information recording medium, which can prevent deformation (warpage) caused by changes in temperature or humidity and can be manufactured easily” (Tajima ¶ [0012]).

As the Examiner indicated (Answer 3), Tajima's Table 5 depicts an embodiment that resists warpage caused by temperature and humidity (Tajima ¶¶ [0059] to [0062]). The Table 5 embodiment includes a transparent polycarbonate substrate layer which is 0.5 mm thick, a thin film layer made of aluminium nitride which is 79 nm thick, a substrate protective film made of UV cured resin 6, which is 3 microns thick, and a thin film protection layer made of UV cured resin 7, which is 12 microns thick (Tajima ¶ [0059]). Tajima's Figure 10 indicates that the optical information recording medium of the Table 5 embodiment has a very small change in warpage angle  $\Theta$  (e.g., approximately -2 to 0.5 mrad) in response to a 30% change in humidity (Tajima ¶ [0062]; Figure 10).

Appellants disclose a optical data recording medium includes a transparent substrate made of polycarbonate that is 0.5 mm thick, a thin film layer made of aluminium nitride that is 65 nm thick, and a protective film made of UV curing resin 1 which is 16 microns thick (Specification 18; Figure 11). Appellants disclose that the warp angle variation should be within the range of 0-5 mrad (Specification 21: 9-10).

From these disclosures, there is a reasonable basis in fact for believing that Tajima's thin film protective layer inherently possesses the claimed expansion coefficient under humidity. Tajima and Appellants disclose using the same substrate material (i.e., polycarbonate) and the same thin film material (i.e., aluminium nitride). Furthermore, the "very small" change in warpage angle (e.g., -2 to .5 mrads) overlaps Appellants range of 0-5 mrads. The overlapping values of the warpage angle property for Tajima's optical data recording medium and Appellants' optical information recording medium provide a reasonable basis in fact to believe that the UV cured resin used by Tajima must have expansion protection properties corresponding to the protective film resin used by Appellants.

Accordingly, because the optical information recording medium of Tajima appears to be identical to the optical data recording medium claimed by Appellants, the burden shifted to Appellants to prove that Tajima's optical information recording medium does not inherently possess the characteristics of the claimed product. *Best*, 562 F.2d at 1255, 195 USPQ at 433-34. Despite having two inventors in common with the Tajima reference, Appellants failed to provide any evidence comparing the properties of Tajima's protective film of the optical information recording medium with Appellants' protective film of the optical data recording

medium. Instead, Appellants provided evidence comparing Tachibana's resins (US Patent 5,102,709, a patent not relevant to the rejection on appeal) with Appellants' UV cured resins. The relevant comparison should have been between Tajima's UV cured resins with Appellants' UV cured resins used as the protective films. Appellants have not satisfied their burden.

Regarding claims 11, 12, and 13, the issue of inherency discussed previously with regard to claims 1 and 10 applies to claims 11, 12, and 13 as well. Specifically, as discussed above, there is a reasonable basis in fact to believe that Tajima's optical information recording medium inherently possesses the claimed physical properties, including the claimed expansion coefficient under humidity. As such, Appellants bear the burden of establishing that Tajima's optical information recording medium does not possess the claimed characteristic. *Best*, 562 F.2d at 1255, 195 USPQ at 433-34. Appellants' proffered evidence (i.e., the Tachibana comparison) is insufficient to rebut the Examiner's *prima facie* case.

Furthermore, claim 12 requires that the "bending moments of the transparent substrate and the protective film generated in humidity are balanced with a neutral plane." We construe the "are balanced" recitation as permitting variations in the warp of the optical data recording medium (i.e., the bending moments need not be exactly balanced). Our claim construction is reasonable in view of Appellants' Figure 5, which demonstrates that for the Figure 11 embodiment, the warp angle varies over time for a given ambient condition (i.e., the line is not perfectly flat for any particular ambient condition).

Based on our claim construction and Tajima's and Appellants' disclosures previously noted, we interpret Tajima's warp angle versus time

shown in Figure 10 as demonstrating that the bending moments of the transparent substrate and the protective film “are balanced” within the meaning of Appellants’ claim 12.

We further note that Appellants use functional language in claim 12 (i.e., the claim language directed to the balancing of the various properties of the film). Where the Patent and Trademark Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. *In re Schreiber*, 128 F.3d 1473, 1478, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997).

Accordingly, based on our claim construction and Appellants’ use of functional language, the burden shifted to Appellants to establish a difference between their optical data recording medium and the optical information recording medium of Tajima. *Id.* Appellants have not established any difference.

Accordingly, we affirm the Examiner’s § 102(b) rejection of argued claims 1, 10, and 11-13 and non-argued claims 5 and 6 over Tajima.

#### CLAIM 14

Appellants argue that the transitional claim language, “consisting essentially of,” excludes a non-identified additional layer disclosed by Tajima such that Tajima cannot be said to anticipate Appellants’ claimed invention (Br. 17).

We have considered Appellants' argument and are unpersuaded for the reasons below.

Generally, by using the phrase "consisting essentially of," applicant signals that the invention necessarily includes the listed components in the claim and is open to unlisted components that do not materially affect the basic and novel properties of the invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). *See also, PPG Indus., Inc. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-354 (Fed. Cir. 1998) (citing *Ex parte Davis*, 80 USPQ 448, 449-50 (BPAI 1948)). With an invention claimed using "consisting essentially of" language, applicant bears the burden of showing that the basic and novel characteristics of the claimed invention would be materially affected by the presence of additional components in a prior art invention that otherwise corresponds to applicant's claimed invention. *In re De Lajarte*, 337 F.2d 870, 874, 143 USPQ 256, 258 (CCPA 1964).

Appellants have proffered no showing that the phrase "consisting essentially of" in claim 14 excludes an additional layer. Appellants have not satisfied their burden of showing that an additional layer would materially affect the basic and novel characteristics of the claimed invention. *De Lajarte*, 337 F.2d at 874, 143 USPQ at 258.

It appears from Appellants' reference to Tajima's Figure 1 as showing the "additional layer" (Br. 17) that Appellants are referring to Tajima's substrate protective film 30 as being the "additional layer." However, such a position contradicts Appellants' disclosure that the optical data recording medium may include an additional protective film 30 for protecting the substrate (Specification 9:15-22). Accordingly, in light of Appellants'

disclosure to include an additional protective film 30, an additional protective layer cannot be said to materially affect the basic and novel characteristics of the claimed invention. *De Lajarte*, 337 F.2d at 874, 143 USPQ at 258.

Therefore, for the above reasons, we determine that an “additional layer,” including an additional protective layer, does not affect the basic and novel characteristics of the claimed invention and is not excluded by the “consisting essentially of” transitional claim language.

Accordingly, we affirm the Examiner’s § 102(b) rejection of claim 14 over Tajima.

#### DECISION

For the above reasons, we AFFIRM the Examiner’s § 102(b) rejection of claims 1, 5, 6, and 10-14 over Tajima.

The Examiner’s decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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Application 10/002,952

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